DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99
Revised 9/20/02

RCRA Corrective Action
Environmental Indicator (EI) RCRA Info code (CA750)
Migration of Contaminated Groundwater Under Control

Facility Name: **Former Electrolux Facility**
Facility Address: **601 East Central Street, Jefferson, Iowa 50129**
Facility EPA ID #: **IAD047055140**

DETERMINATION RESULT: YE

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

__X__ If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ if data are not available, skip to #8 and enter"IN" (more information needed) status code.

BACKGROUND

The site is 20.75 acres. Approximately 7.5 acres of the 20.75 acres were used for manufacturing operations. The site was developed in 1960 to manufacture dishwater motor transmissions. Solvents and oils were used as part of the manufacturing process. EPA was notified that hazardous waste solvents were used and generated at the facility. The facility operated from 1960 to March of 2011. In March of 2011, Electrolux closed the facility, decommissioned and removed the manufacturing equipment and other items from the facility buildings and then demolished and disposed of the buildings. The concrete building slabs, parking areas, and sidewalks are the only structures that remain in place. Following demolition and disposal of the buildings, a chain-link fence was installed around the entire perimeter of the former manufacturing area to prevent access. Electrolux then commissioned Golder Associates to review the site history and to investigate the site for potential environmental impacts. Trichloroethylene (TCE) and other volatile organic compounds and oils were discovered in the soil and groundwater at and beneath the site. Between 2011 and October 2016, Golder Associates submitted several reports and other documents containing information about the contamination found at the former Electrolux facility. [See Soil and Groundwater Assessment Addendum NO. 2 dated January 2014 and Site Summary Report dated October 2016]

Below are a few Google views taken of the facility.

Migration of Contaminated Groundwater Under Control
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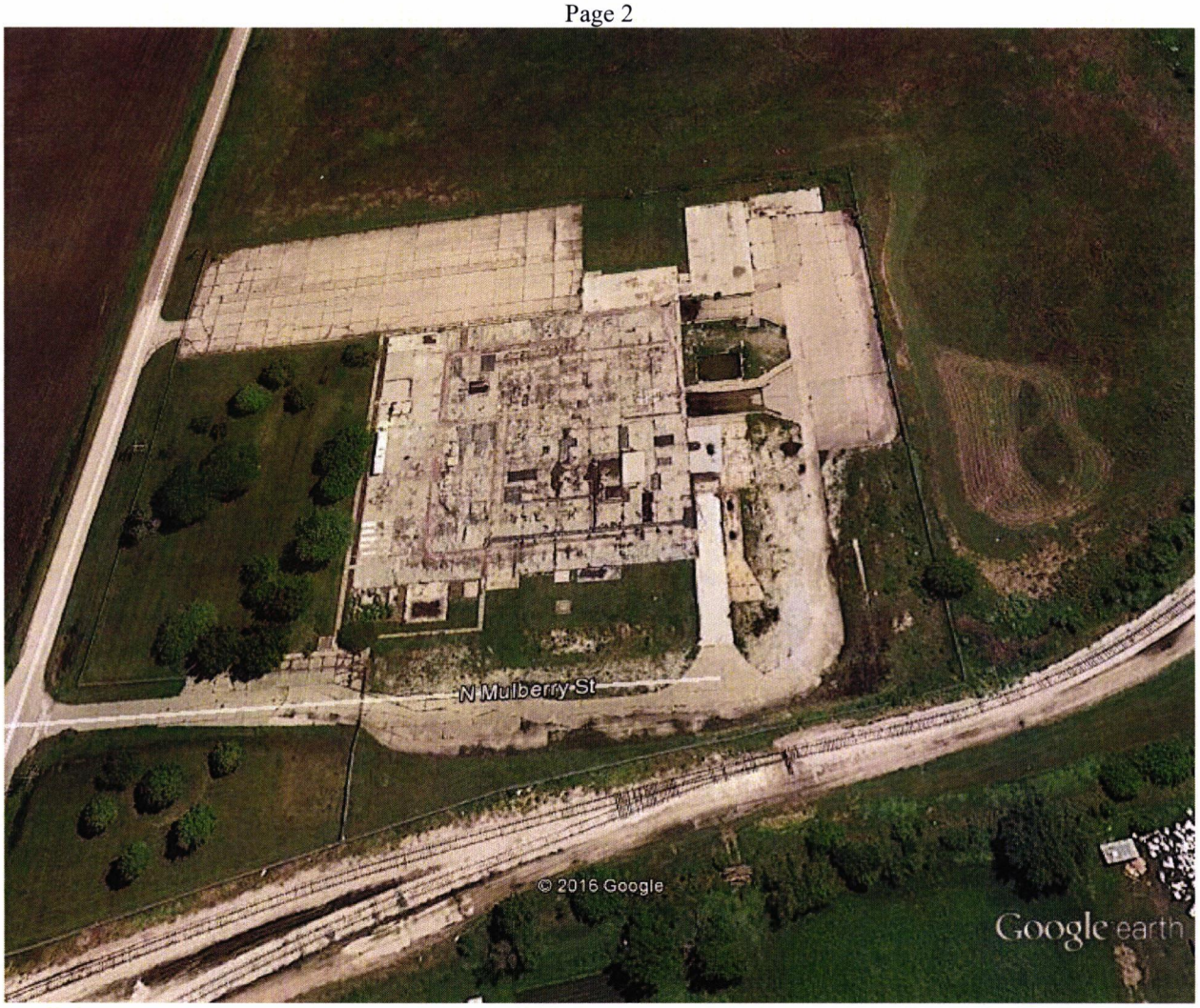

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRA Info code (CA750)

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRA Info code (CA750)


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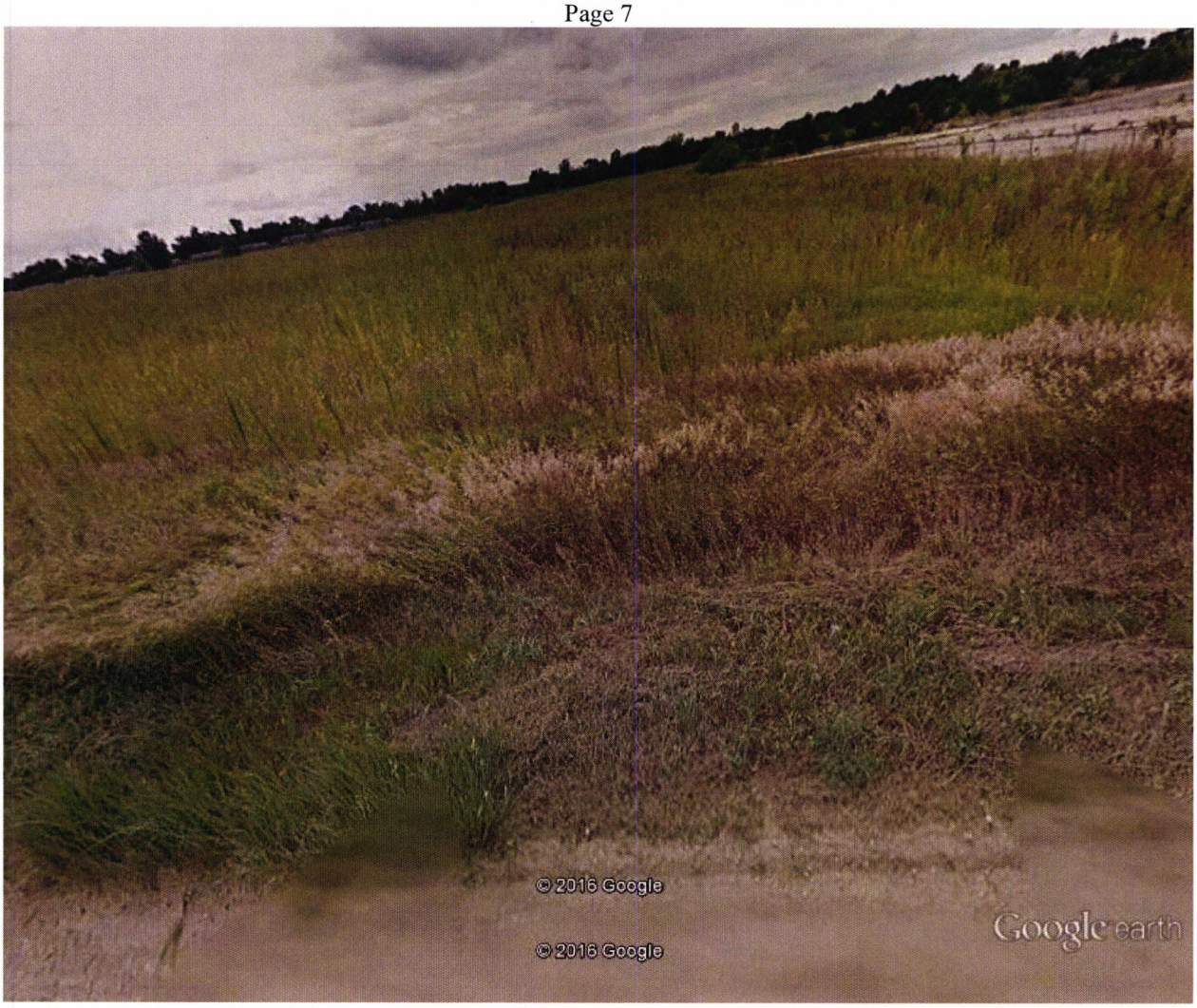

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRA Info national database ONLY as long as they remain true (i.e., RCRA Info status codes must be changed when the regulatory authorities become aware of contrary information).

2. Is **groundwater** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria [e.g., Maximum Contaminant Levels (MCLs), the maximum permissible level of a contaminant in water delivered to any user of a public water system under the Safe Drinking Water Act]) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

___X__ If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

_____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

TCE is the main contaminant of concern at the site. There are TCE degradation contaminates and other VOCs and oil in the groundwater.

Soil and Groundwater Assessment Addendum NO. 2 dated January 2014, Table 5, MW 19 yielded groundwater containing TCE at 302,000 ug/l. The EPA MCL is 5ug/l.

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[1]"Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

__X___ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2]).

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) - skip to #8 and enter "NO" status code, after providing an explanation.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

TCE has been detected in the groundwater as high as 302,000 ug/l, which is above the EPA MCL of 5 ug/l. All groundwater contamination is located on-site. The site is vacant, has no buildings, and has no ongoing operations. There are no private water supply wells on-site or within 8/10 of a mile of the site that is used for the consumption of water. However, there are several municipal water supply wells located approximately 8/10 of a mile to the south/southwest of the site that provides water to the City of Jefferson, Iowa. No detections of TCE or other VOC contaminates or oil that have been found at the site have been found in any of the municipal water supply wells located approximately 8/10 of a mile away. The site likely falls with the 15 year capture zone of these municipal water supply wells. The facility began operations in 1960. The RCRA regulations governing the collection, storage, treatment, and disposal of TCE and other solvent waste became effective approximately 1980. Again the facility was operated from 1960 until 2011. Electrolux asserts that it never operated a RCRA hazardous waste treatment, storage, or disposal facility at the site. Electrolux asserts that TCE and other waste solvents were only generated and stored at the site prior to off-site disposal. Electrolux asserts that it does not know of any areas were releases of TCE or other solvents have occurred at the site. Regulations were in place governing the collection, storage, treatment and disposal of TCE and other solvents as of approximately 1980, so it is likely that the contamination in the soil and groundwater happened prior to 1980 but after 1960 when the facility began operations. The site is underlain by approximately 100 ft of silty/clayey till. The groundwater contamination on-site is situated/contained in the approximately 100 ft of silty/clayey till. Below the silty clayey till is the Pleistocene sands and gravels. The City of Jefferson obtains its water from the municipal water supply wells completed in the Pleistocene sands and gravels. It is likely that the contamination found at the site occurred before 1980. Thus, since 1980, or in the last 35 years, the on-site groundwater contamination has not migrated into the Pleistocene sands and gravels aquifer. The lower portions of the silty/clayey till have a very low hydraulic conductivity. Thus, the silty/clayey till appears to be an aquitard. Given that contamination has not migrated into the Pleistocene sands and gravels aquifer in the last 35

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[2] "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

years, it cannot reasonably be expected to migrate there in the near future. In sum, the groundwater contamination cannot be reasonably expected to be a significant exposure concern in the near future. [See Request for Information Response dated December 5, 2011, Soil and Groundwater Assessment Addendum NO. 2 dated January 2014, and Site Summary Report dated October 2016]

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

_____ If yes - continue after identifying potentially affected surface water bodies.

__X___ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

No surface water near the facility.

[Site Summary Report dated October 2016]

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

_____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

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[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment[5], appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):

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[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5]The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

__X___ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

There is a current monitoring well network that has been and is currently being used to monitor the groundwater contamination.

[Site Summary Report dated October 2016]

8. Check the appropriate RCRA Info status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

__X___ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Former Electrolux facility, EPA ID # IAD047055140, located at 601 East Central Street, Jefferson, Iowa 50129. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

_____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

_____ IN - More information is needed to make a determination.

Completed by Brian Mitchell Date 11/22/16
(signature)
Brian Mitchell
Project Manager, RCRA Corrective Action & Permits Branch
EPA Region 7

Supervisor _____ Date 12/7/16
(signature)
Don Lininger
Branch Chief, RCRA Corrective Action & Permits Branch

EPA Region 7

Locations where References may be found:

EPA Region 7 Headquarters
RCRA Files
901 North 5th Street
Kansas City, Kansas 66101

Contact telephone and e-mail numbers

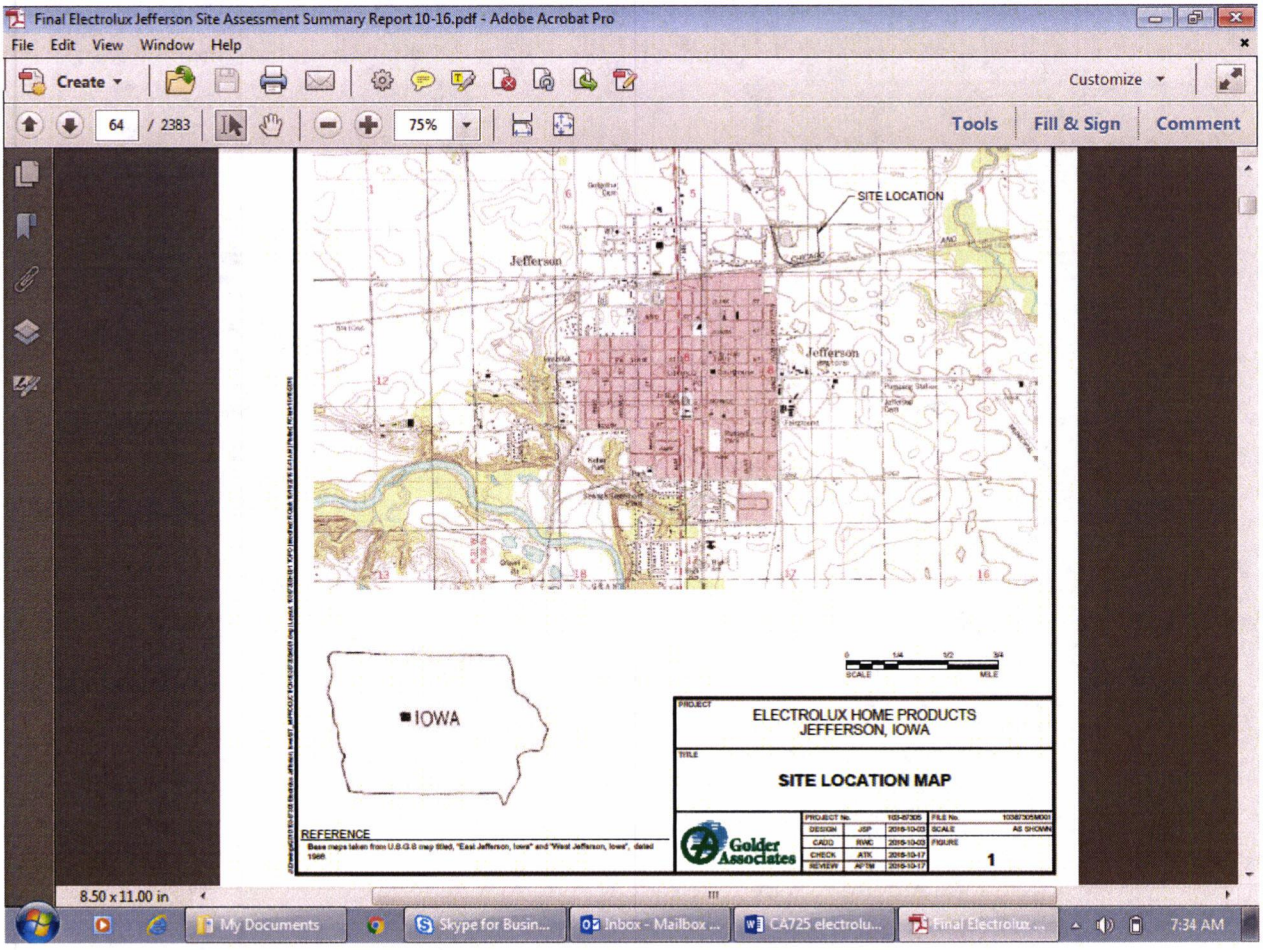
Brian Mitchell
(913) 551-7633
mitchell.brian@epa.gov

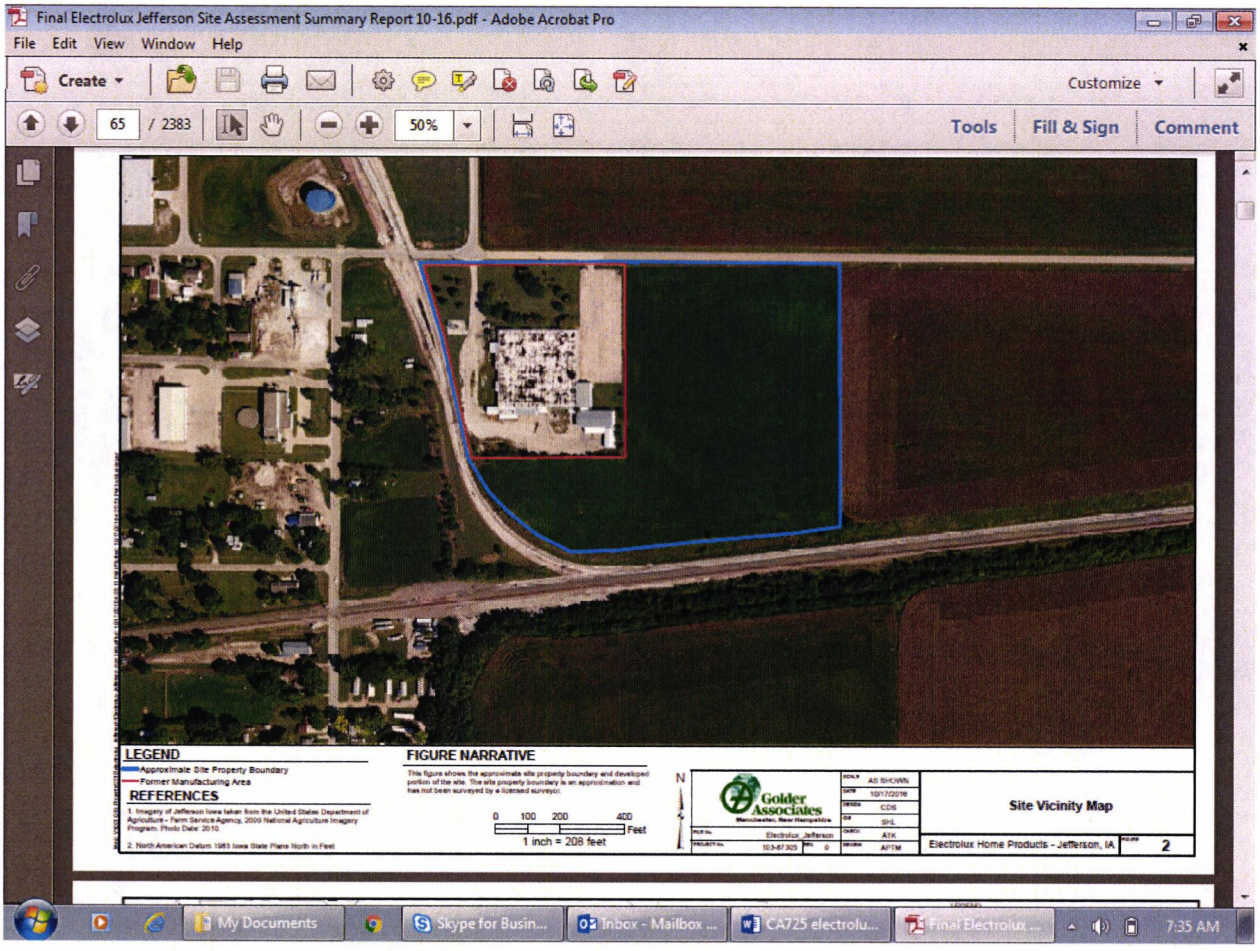
REFERENCES

Identified in the specific sections.

FIGURES

(pages 15 to 26)

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Approximate Site Property Boundary
Former Manufacturing Area
REFERENCES
1. Imagery of Jefferson Iowa taken from the United States Department of Agriculture - Farm Service Agency, 2009 National Agriculture Imagery Program. Photo Date: 2010.
2. North American Datum 1983 Iowa State Plane North in Feet
FIGURE NARRATIVE
This figure shows the approximate site property boundary and developed portion of the site. The site property boundary is an approximation and has not been surveyed by a licensed surveyor.
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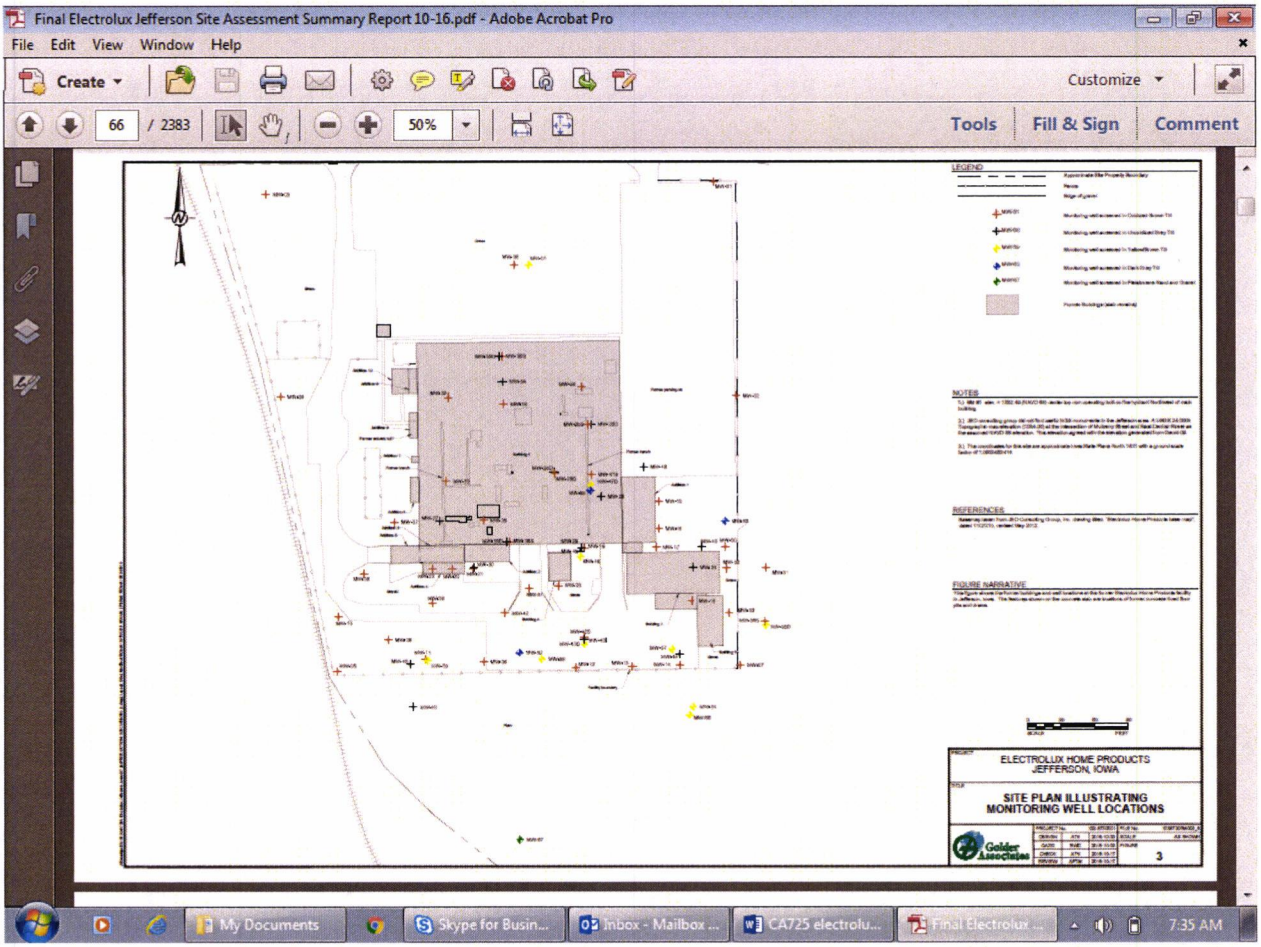
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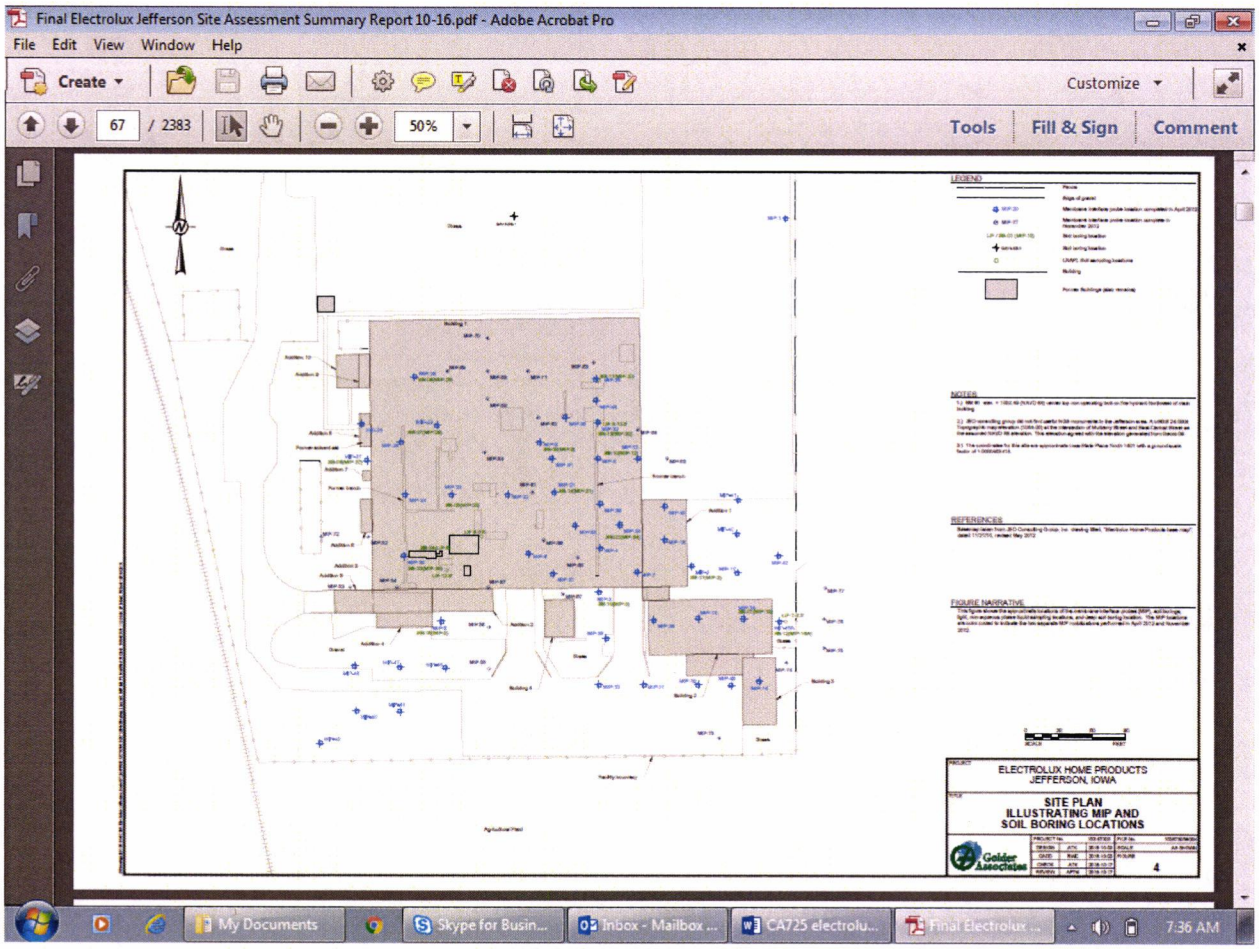
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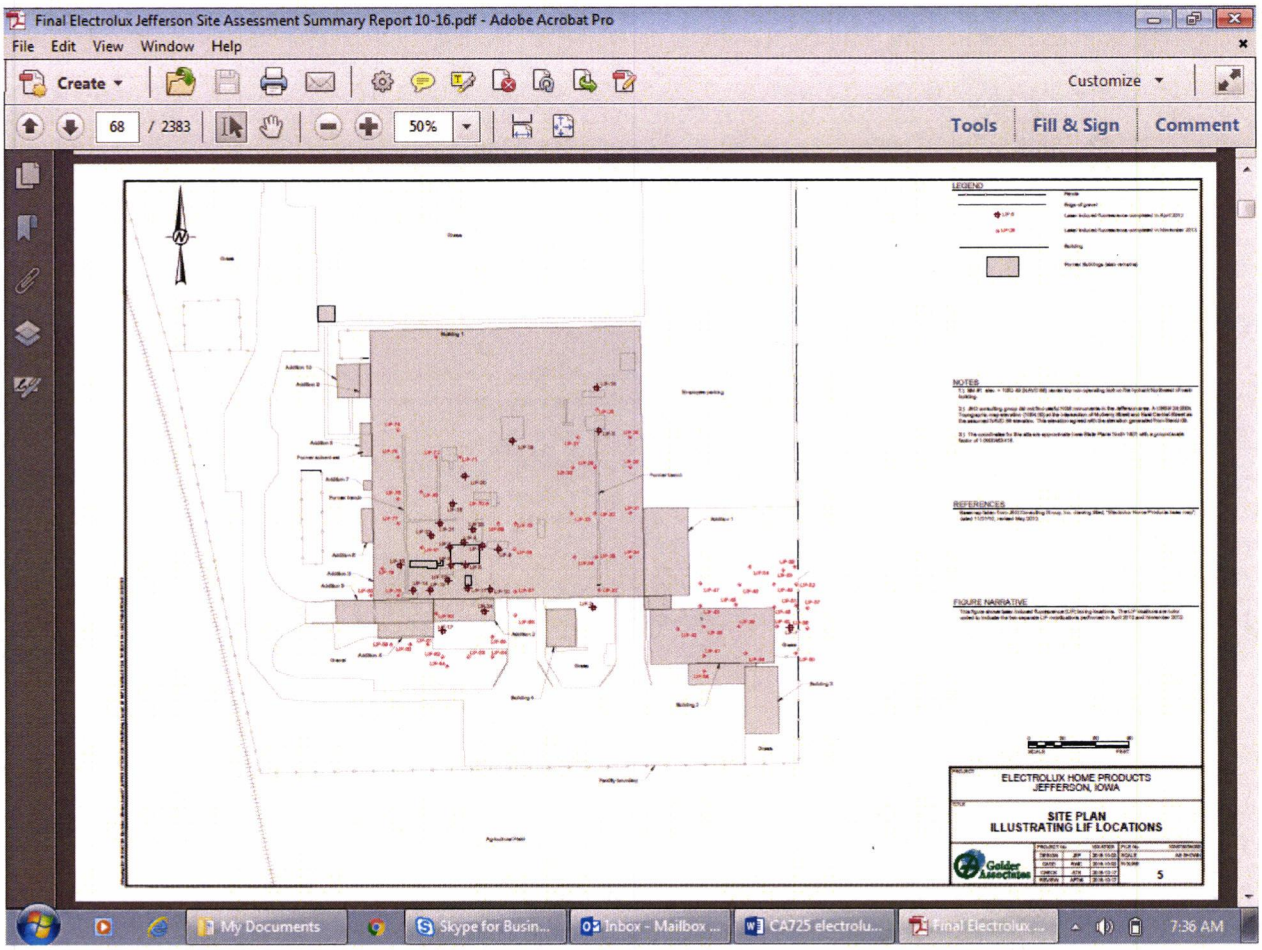
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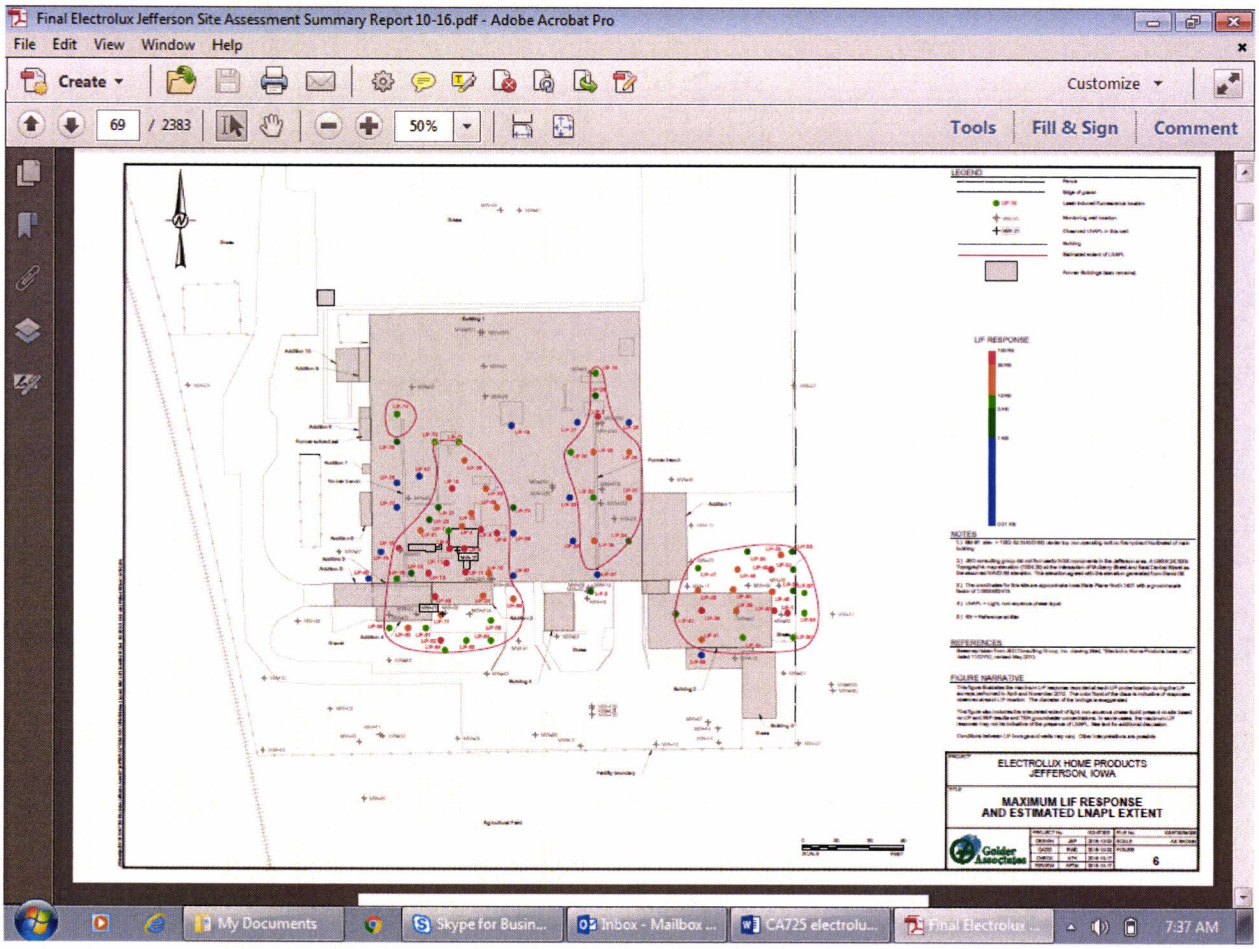
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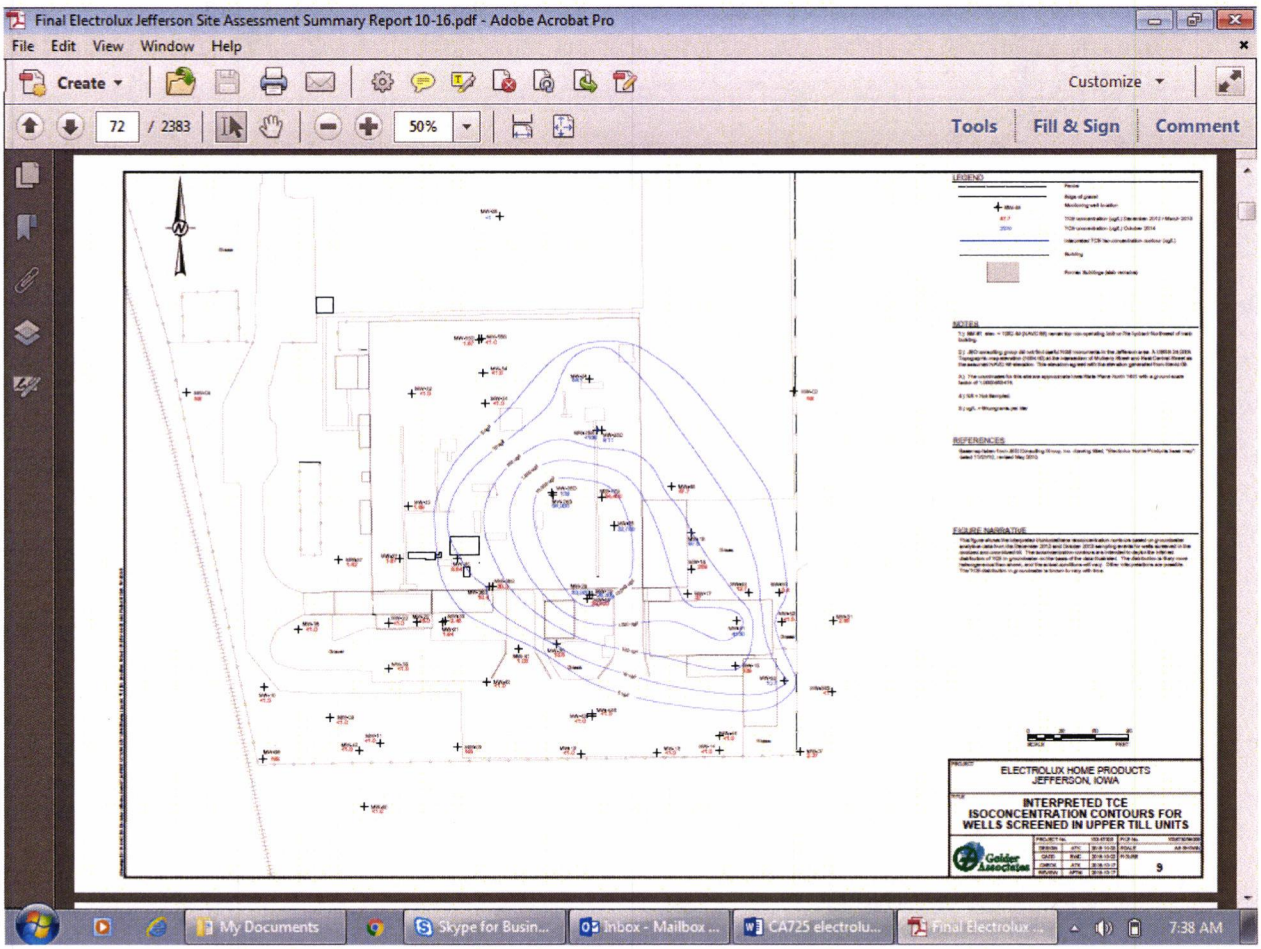
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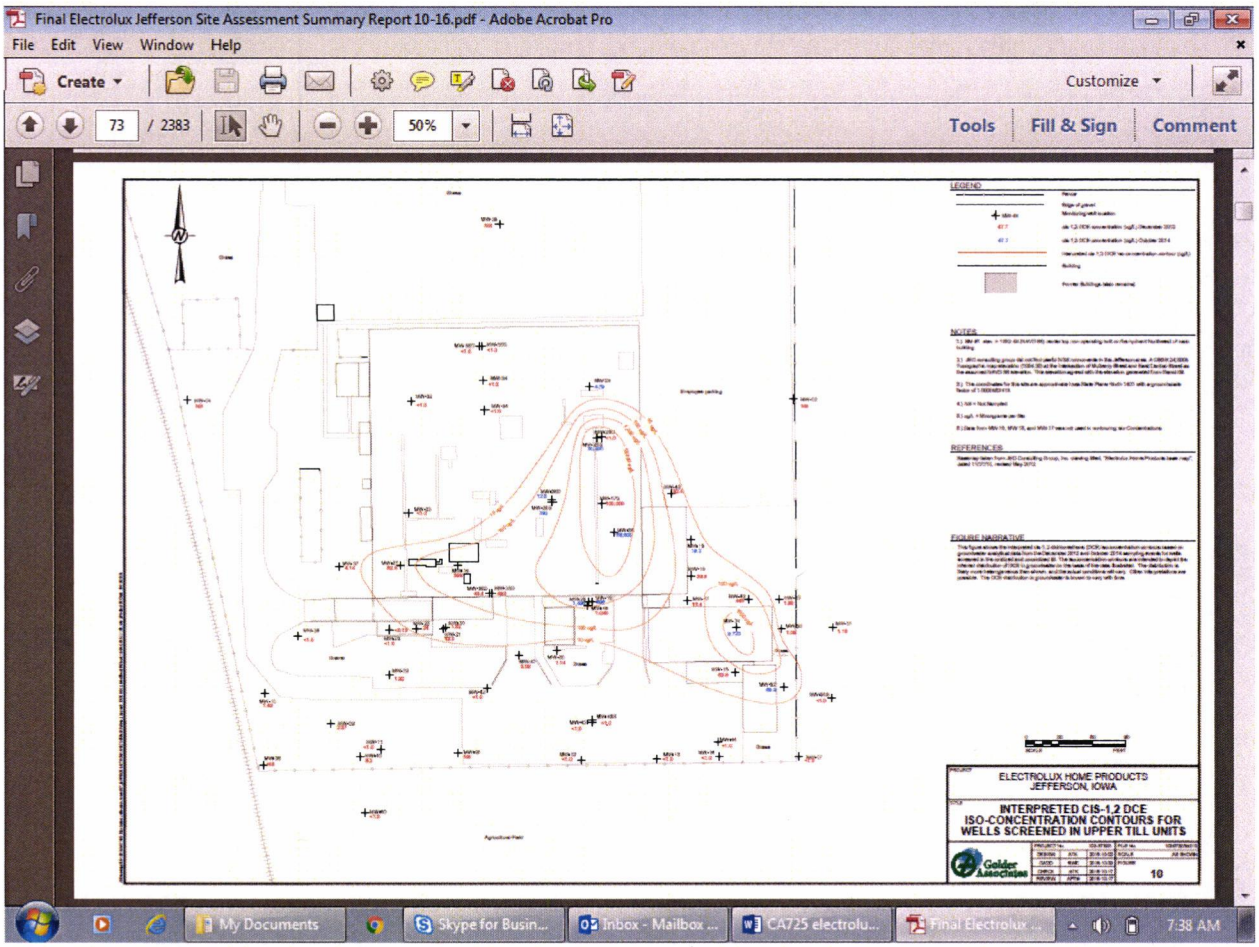
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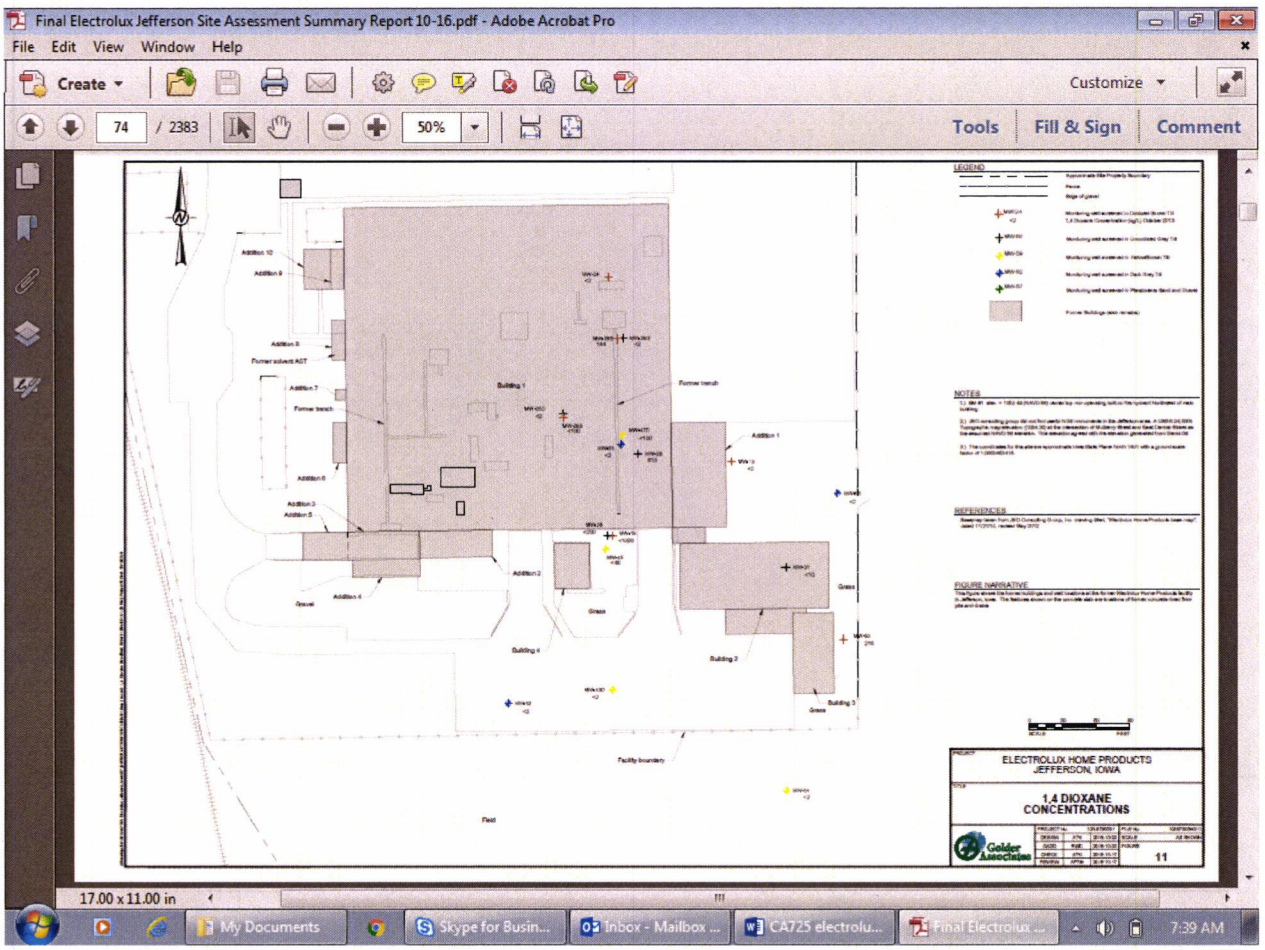
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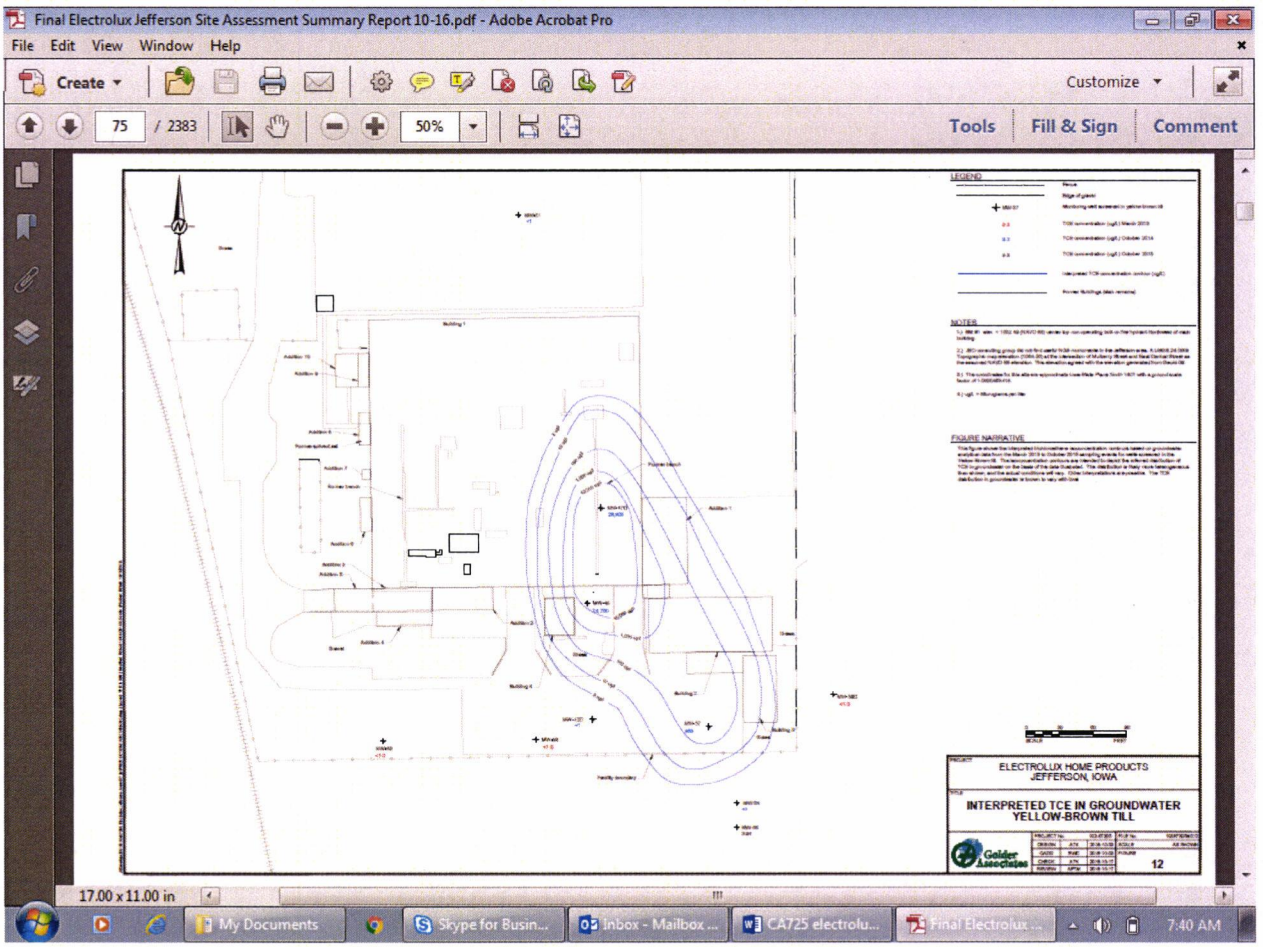
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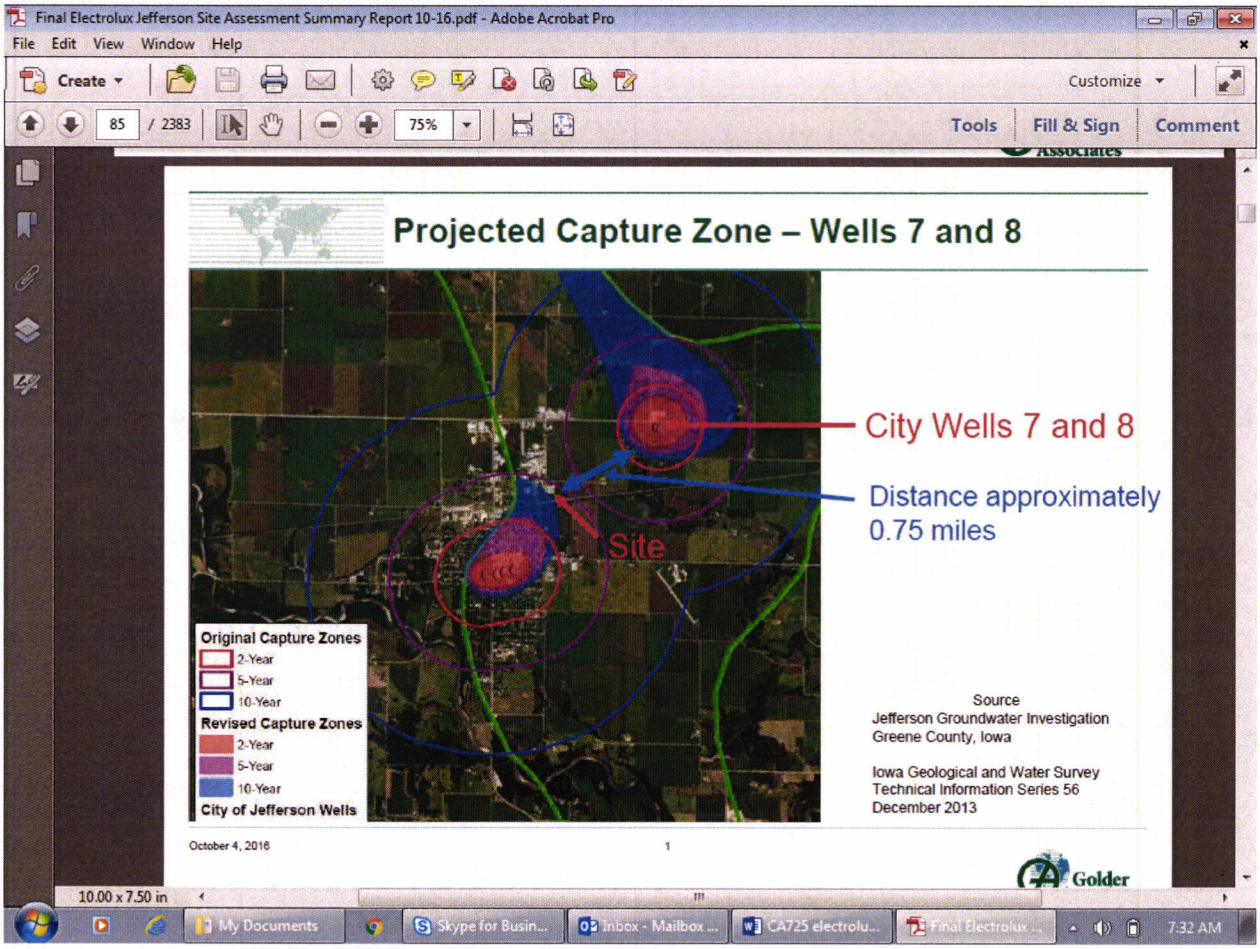
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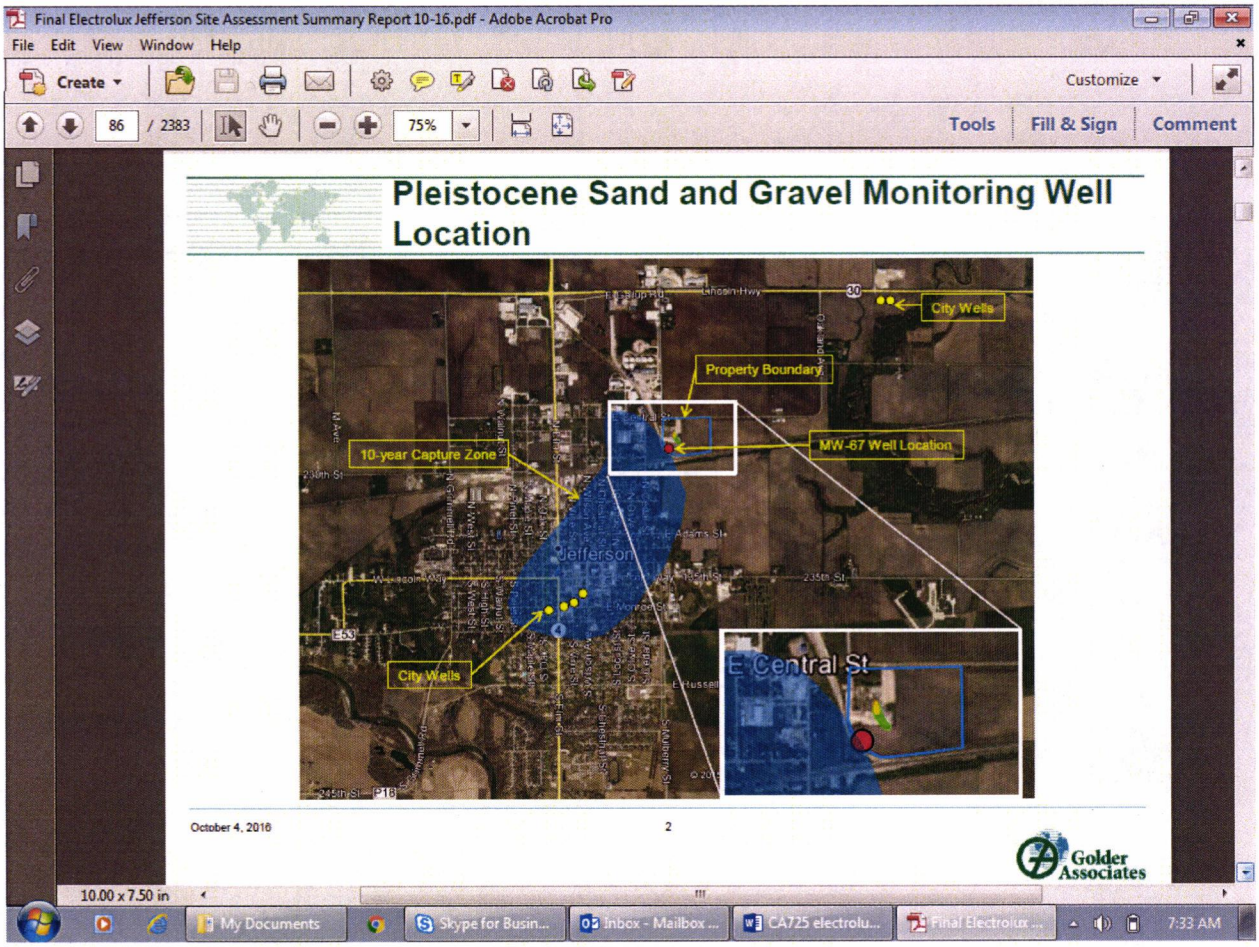
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